A CHLORIDE POWER PROTECTION COMPANY

Sinergy™ Series User Instruction Manual

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS.

Please read and save these instructions. This manual contains important instructions for ONEAC models:

- S700A
- S1000XA
- S2000XA
- S3000XA
- SBP1000
- SBP3000
- S700A-RM
- S1000XA-RM
- S2000XA-RM
- S3000XA-RM
- SBP1000-RM
- SBP3000-RM
- SE61XA (SE41XA)
- SE101XA (SE81XA)
- SE203XA (SE153XA)
- SBPE61
- SBPE101

Follow these instructions during installation and maintenance of the UPS and batteries.

If you have a problem with the UPS, please refer to this manual before calling the Technical Support Department. The Troubleshooting section on page 28 addresses most UPS-related issues.

FCC Compliance

ATTENTION: *Changes or modifications to this unit not expressly approved by the party responsible or in FCC compliance could void the user's authority to operate the equipment.*

This equipment was tested and complies with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the UPS is operating in a commercial environment. The UPS generates, uses, and can radiate radio frequency energy. If installation and use is not in accordance with the instruction manual, it may cause harmful interference to radio communications.

ATTENTION:*Operation of this equipment in a residential area may cause harmful radio communications interference. The user is responsible for correcting the interference.*

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913-459 Rev. D1

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Chapter 1 Introduction

Thank you for selecting this uninterruptible power supply (UPS). ONEAC's Sinergy Series offers the most reliable protection from the harmful effects of electrical line disturbances for your computing and communications equipment.

ONEAC's ISO 9001 certification represents our commitment to building world-class products. We take pride in every unit that leaves our manufacturing facility.

1.1 Registering your ONEAC UPS

To ensure that your Sinergy Series model and serial number are registered, complete and mail the enclosed postage-paid warranty card or go online at www.oneac.com.

1.2 Technical Support and Service

ONEAC offers 24-hour technical support. To contact ONEAC Technical Services:

- North America: (800) 327-8801 (opt. 3) or (847) 816-6000 (opt. 3)
- Europe: +44 (0) 1235 861962
- email: ts@oneac.com.

NOTE: *All calls received before 7 a.m. or after 7p.m. Central Standard Time are forwarded to a cell phone. An ONEAC Technical Service Representative will return your call within one half hour between 5 p.m. and 10 p.m. Central Standard Time. Except for emergencies, calls received between 10 p.m. and 7 a.m. will be returned during normal business hours.*

Please check with ONEAC Technical Services before attempting to repair or return any ONEAC product. If an ONEAC unit needs repair or replacement, ONEAC Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

1.3 Safety Notes

WARNING: *Read the following information carefully! Disregard of these safety notes may endanger your life and health as well as the functioning of your equipment and the safety of your data.*

WARNING: *This equipment services power from more than one source. The output receptacles may have voltage even when the unit is unplugged.*

UPSs present a different safety issue than most electrical equipment because unplugging the UPS puts it into backup mode. Unplugging the UPS does not remove the electrical charge. To ensure that the UPS is off, push BYPASS (for a minimum of 1 second) before unplugging the UPS from the mains.

CAUTION: *Operating this equipment without proper grounding may present a risk of electrical shock.*

Do not use AC adaptors with only two conductors to connect the input line cord to the wall socket as this will not connect the earth ground to the equipment.

WARNING: *Dangerous voltages are present within this unit! There are no user-serviceable parts inside. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical code.*

This device complies with the relevant safety regulations for uninterruptible power supplies for use in a controlled office environment. If you have any questions, please contact ONEAC Technical Service at 1- 800-327-8801 Opt. 3 or 1-847-816-6000, Opt. 3.

- Transport the unit only in suitable packaging (protect against jolts and shocks).
- If the equipment is moved indoors from a cold environment, condensation may occur. Before you place the equipment in service it must be absolutely dry. An acclimatization period of at least two hours is required.
- This equipment must be installed in an indoor, temperature controlled environment that is free of conductive contaminants. See chapter 10, “Specifications” on page 30 for specific environmental limits.
- This equipment has a safety-tested power cable and may only be connected to a properly grounded receptacle. The special conditions for installing the hard-wired devices SE61, SE101 and SE203 in chapter 4, “Installation and Commissioning” on page 13 must be observed.
- The switch (see chapter 2, “Display and Operation Elements” on page 3) does not isolate the device (UPS) from the mains. To isolate completely from the mains, the main switch must be switched off and the power plug disconnected.

  CAUTION: *Removing mains power may not remove power from the device (UPS) output. See instructions above to properly remove power from output.*
- In case of interruption of the mains voltage, the integrated battery maintains the power supply to the connected equipment.
- Lay all cables so that nobody can stand on them or trip over them. When connecting the device to the power supply, follow the instructions in the chapter on “Installation and Commissioning” on page 13.
- No data transmission lines should be connected or disconnected during a thunderstorm.
- Make sure that no objects (e.g. pins, necklaces, paper clips, etc.) get inside the device.
- In emergencies (e.g. damaged case, controls or power cables, penetration of liquids or foreign matter) put the device into BYPASS, disconnect the power plug and contact ONEAC Technical Services at 1-800-327-8801 Opt. 3 or 1-847-816-6000. The special conditions for installing the hardwired devices, SE61, SE101 and SE203 are in chapter 4, “Installation and Commissioning” on page 13.
- Do not connect equipment that will overload the UPS (e.g. laser printers or vacuum cleaners) or demand DC-current (e.g. half-wave rectifiers or hair dryers).
- When cleaning the unit, follow the instructions in chapter 7, “Maintenance” on page 27.
- The sum of the leakage currents (protective conductor current) of the UPS and the connected devices must not exceed 3.5 mA for the types S700, S1000, S2000 and S3000.

ONEAC Sinergy UPSs are UL listed under UL1778 for North American units.

1.4 Warning for SE61, SE101 and SE203

This product may only be sold to users with qualified personnel. In order to avoid RF, restrictions for installation or additional precautions may apply.

Chapter 2 Display and Operation Elements

The Uninterruptible Power System (UPS) is connected between AC power and the load. It protects the load against mains disturbances, especially power failures.

Its operation is based on the on-line principle. The connected load is supplied power through the UPS's inverter. Power disturbances from the mains are suppressed which increases the loads' operational security (PC, network server, multi-user systems etc.)

In the event of a mains failure, maintenance-free batteries provide an uninterrupted supply of energy. In practice, mains failures are of relatively short duration, dependent on the mains quality. Therefore, the UPS' energy is in most cases sufficient to ensure continuous operation of the connected systems, until the mains is reestablished. In the event of a longer lasting mains failure it allows for controlled shutdown of connected systems.

The UPS indicates by acoustical (buzzer) and optical (LED) alarms that a mains failure has occurred and is still persistent. Battery runtimes vary depending upon load, number of batteries and environmental conditions.

The following chart shows the approximate values of the emergency runtime (assuming fully charged battery at the onset of the mains failure.)

	Load in %	S700	S1000	S2000	S3000	SE61	SE101	SE203*
OVERLOAD	>105							w/SBPE101
	95-105	6 min	7 min	10 min	6 min	9 min	12 min	15 min
LOAD	75-95	7 min	8 min	11 min	7 min	10 min	13 min	20 min
	55-75	10 min	11 min	16 min	10 min	13 min	19 min	25 min
	35-55	15 min	17 min	24 min	15 min	21 min	25 min	45 min
	1-35	28 min	33 min	37 min	28 min	40 min	40 min	90 min

NOTE: **Model SE203 does not contain internal batteries.*

- The actual battery capacity can be read from the LED-"battery" chain (see table below).

	Battery Capacity
Battery	1 - 35%
	35 - 55%
	55 - 75%
	75 - 95%
	95 - 100%

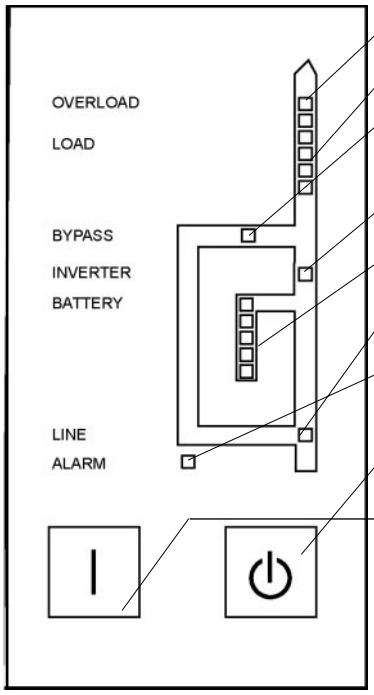
The most reliable method for determining actual battery runtime is the application of ONEAC MopUPS® software. With this software, the prospective remaining battery capacity is indicated before and during an AC power failure. Furthermore, shutdown procedures can be automated. Depending on the application program, operating system and computer hardware, it can be ensured that in the event of a power failure the application programs are automatically closed, the subscribers logged in at the server are logged out, the data is stored and the operating systems are shut down. For further information please refer to our publication about the ONEAC ManageUPS™NET SNMP Adapter.

After return of the mains voltage, the UPS automatically initiates a restart. The connected systems are restarted according to their specifications.

In the event of overload or internal failure, the load is supplied from the mains via an automatic bypass. As soon as the normal status is reestablished, automatic switchover to inverter operation is performed.

This operation manual contains all relevant information to install and operate the UPS.

2.1 Front



The **OVERLOAD** indicator is on when the UPS is overloaded.

The LED-chain **LOAD** indicates the load state of the UPS.

The **BYPASS** indicator is on when the UPS supplies a voltage via the bypass.

The **INVERTER** indicator is on when the inverter is in operation.

The LED-chain **BATTERY** indicates the battery's charge state (normal operation) or the % of battery time remaining when mains fail.

The **LINE** indicator is on when there is mains voltage at the UPS input.

The **ALARM** indicator is on when the UPS is faulty. Simultaneously, an acoustical signal is given, which can be reset by pressing the BYPASS switch.

The switch ⏻ switches the inverter off and the bypass on. The UPS still has output voltage.

Operating the switch | activates the inverter. After a delay of approximately 5 seconds the **BYPASS** indicator extinguishes and the **INVERTER** indicator illuminates.

NOTE: *To switch from BYPASS to INVERTER, press the | switch for at least 1 second. (A tone sounds confirming the switch).*

2.2 Rear

2.2.1 Type S700 and S1000

Selector switch - for output voltage. The selection of the output voltage must be made with the UPS switched off and unplugged.*

Input fuse - the fuse may only be changed when the device is switched off and unplugged.

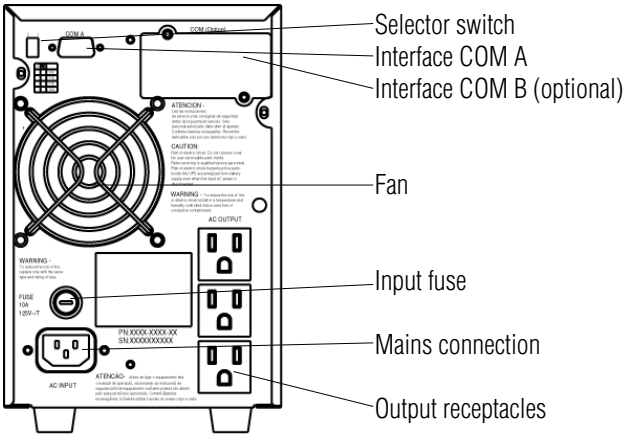


Fig. 1: S700 Rear View

Selector switch - for output voltage.
The selection of the output voltage must be made with the UPS switched off and unplugged.*

Input fuse - the fuse may only be changed when the device is switched off and unplugged.

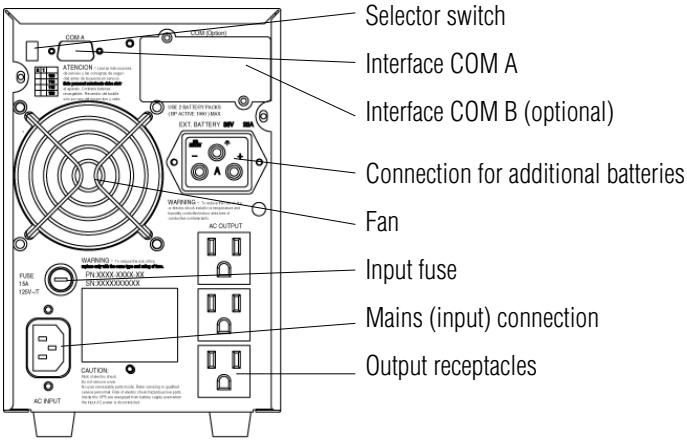


Fig. 2: S1000 Rear View

* Call ONEAC Technical Services for information on setting output voltages (1-800-327-8801, opt. 3 or +1-847-816-6000).

2.2.2 Type S2000 and S3000

Selector switch - for output voltage.
The selection of the output voltage must be made with the UPS switched off and unplugged.*

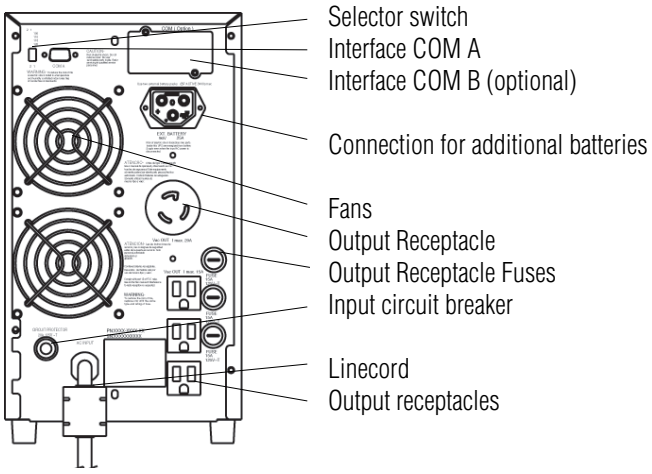


Fig. 3: S2000 Rear View

For output voltage
The selection of the output voltage must be made with the UPS switched off and unplugged.*

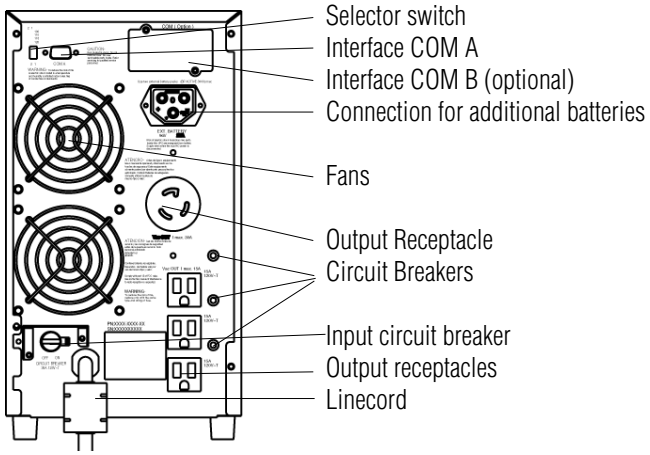


Fig. 4: S3000 Rear View

* Call ONEAC Technical Services for information on setting output voltages (1-800-327-8801, opt. 3 or +1-847-816-6000)

2.2.3 Type SE61 and SE101

Selector switch - for output voltage
The selection of the output voltage must be made with the UPS switched off.*

(SE61 with optional PDU shown)

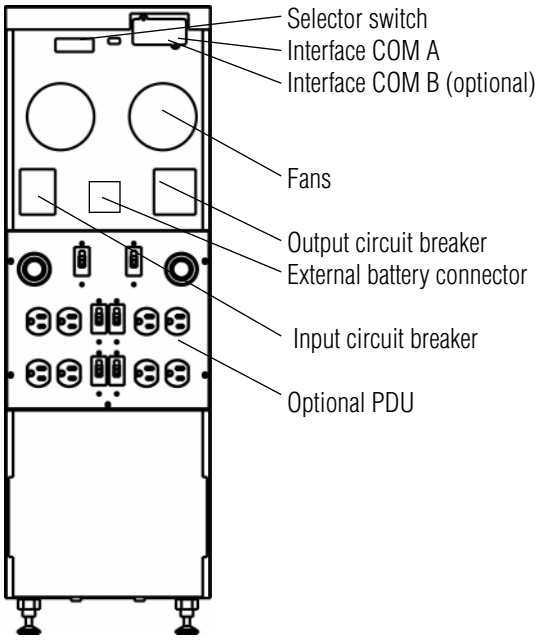


Fig. 5: SE41 or SE61

Selector switch - for output voltage
The selection of the output voltage must be made with the UPS switched off.*

(SE101 with optional PDU shown)

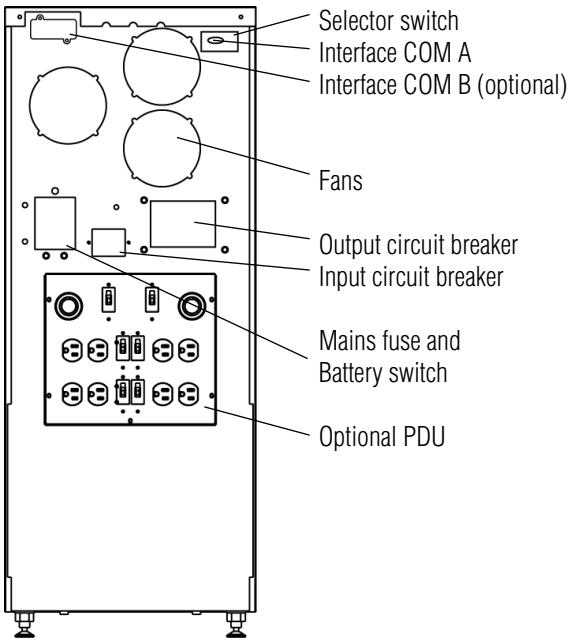


Fig. 6: SE81 or SE101

* Call ONEAC Technical Services for information on setting output voltages (1-800-327-8801, opt. 3 or +1-847-816-6000)

2.2.4 Type SE203

Selector switch - for output voltage
The selection of the output voltage must be made with the UPS switched off.*

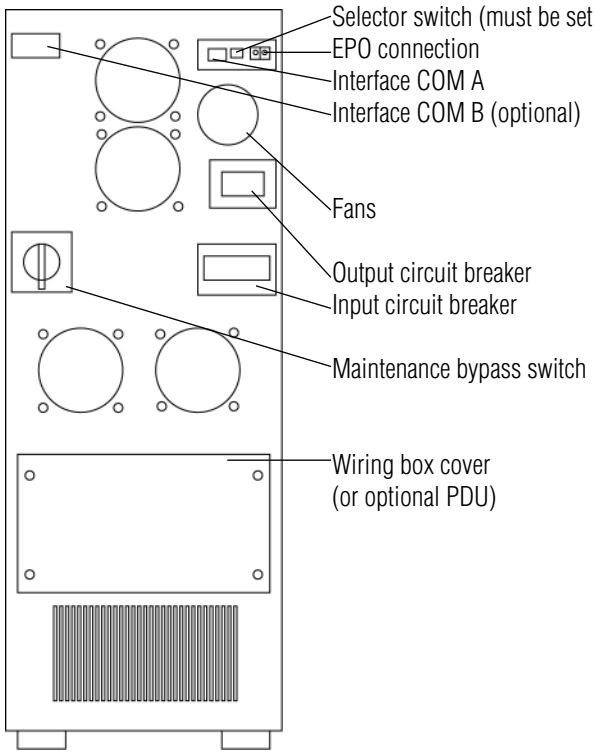


Fig. 7: SE203

* Call ONEAC Technical Services for information on setting output voltages (1-800-327-8801, opt. 3 or +1-847-816-6000)

Chapter 3 Rackmount Series

The technical data of the Sinergy Series Rackmount UPS corresponds to the standard unit series Sinergy, except for the details which are explained below. The Sinergy Series Rackmount consists of the following types:

- S700-RM, with 700 VA nominal rating
- S1000-RM, with 1000 VA nominal rating
- S2000-RM, with 2000 VA nominal rating
- S3000-RM, with 3000 VA nominal rating,
- SBP1000-RM
- SBP3000-RM

The above listed units with a mounting height of 2 U (2 U = 3.50 inches) are designed for installation in a standard 19-inch industrial rack.

3.1 Safety

3.1.1 Intended use

This system, called “unit” in the following text, serves as an uninterruptible power supply of connected loads in a 19-inch rack. In certain configurations battery packs are part of the unit. These battery packs may only be connected electrically with the corresponding base unit.

3.1.2 Further safety notes

- When mounting the unit into a rack, it has to be attached on both sides and the front plate of the unit has to be fixed to the rack by screws.
- There may be connected:
  - up to 2 battery packs to the S1000-RM.
  - up to 5 battery packs to the S2000-RM or S3000-RM.
- The vents for air intake and outlet at the front and rear side must not be obstructed.

3.2 Installation and operating notes

3.2.1 Selection of the mounting location

The Sinergy Series Rackmount units are designed to be mounted in a 19-inch rack. When installing the UPS, please consider the heavy weight of some components. Preferably, they should be installed in the lower section of the rack. UPS systems consisting of several components must be installed so that the battery packs are mounted in the lower section with the UPS mounted directly above them.

3.2.2 Mechanical Attachment

The units must be attached in the rack on both sides. When using the attached mounting rails, the single unit can easily be inserted into a 2 U mounting space or removed from it. In order to attach the unit in the horizontal position, the front-plate has to be attached to the 19-inch rack at the indicated points on both sides of the unit.

Do not attach the unit only at the front-plate. This may damage the unit and/or other mounted units.

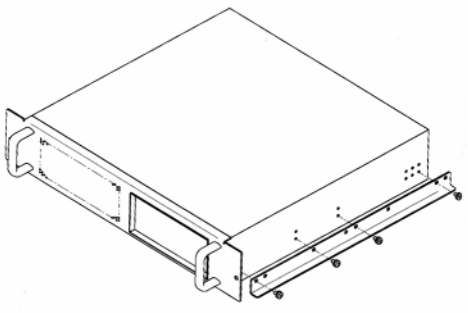


Fig. 8: Mounting the rails at the body of the UPS or Battery-Pack.

The following table shows the maximum configuration.

Table 1. Battery Cabinets

UPS	Type of Battery Packs	Maximum Number of Packs
S700-RM	None	None
S1000-RM	SBP1000-RM	2 units
S2000-RM	SBP3000-RM	5 units
S3000-RM	SBP3000-RM	5 units

3.2.3 Connection of a battery pack

NOTE: *Before connecting a battery pack to the UPS, the miniature circuit breaker of the battery pack must be switched to "OFF." After electrical connection with the UPS, this breaker has to be switched "ON."*

NOTE: *The S2000-RM and S3000-RM have no internal batteries.*

3.3 Unit Rear View and Connections

3.3.1 S700-RM and S1000-RM

The following figures show the S700-RM, S1000-RM, S2000-RM and S3000-RM with battery extensions.

NOTE: *No battery extension can be connected to the 700 VA unit.*

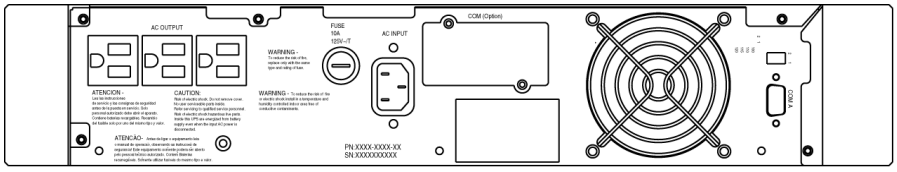


Fig. 9: S700-RM

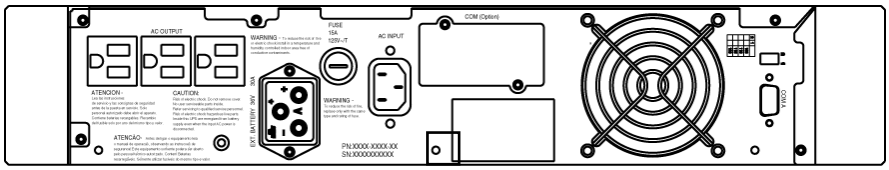


Fig. 10: S1000-RM

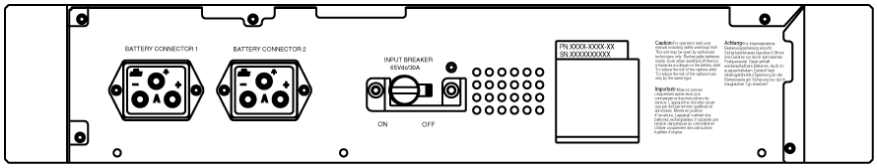


Fig. 11: Battery Pack - SBP1000-RM

To connect the battery pack to the unit, use the separate cable supplied.

3.3.2 S2000-RM and S3000-RM

NOTE: *Each battery cabinet SBP3000 contains two battery connections. The first battery pack is connected to the battery cables of the UPS, each further extension is connected by means of the two cables. Each cable is non-interchangeable, because the sockets are coded.*

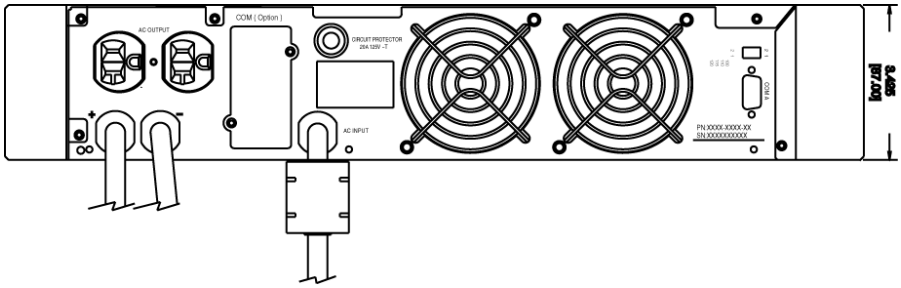


Fig. 12: S2000-RM

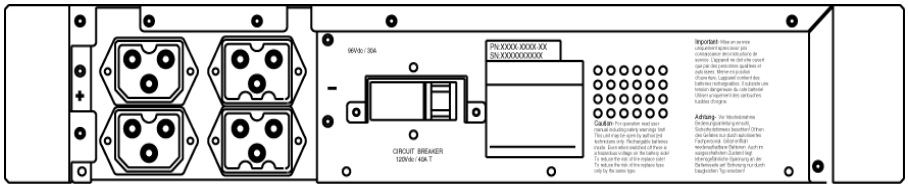


Fig. 13: Battery Pack - SBP3000-RM

3.3.3 S3000-RM

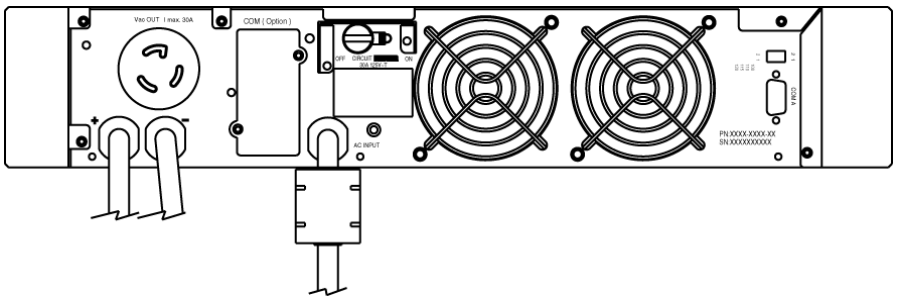


Fig. 14: S3000-RM

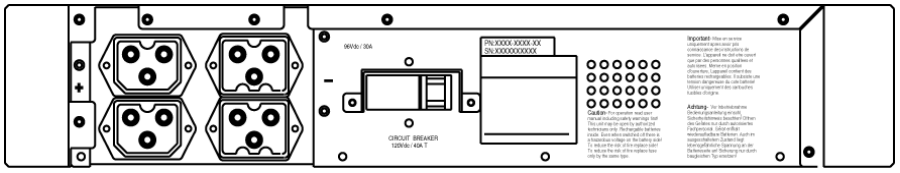


Fig. 15: SBP3000-RM

Chapter 4 Installation and Commissioning

Upon receipt of your UPS, carefully examine the packing containers for any sign of physical damage. Notify the carrier immediately if damage is present. Carefully unpack the UPS. Retain the packaging for reuse or dispose. Check the packing for damages.

NOTE: *If damages are detected, please inform the shipping agent immediately.*

UPS includes:

- UPS device
- Connection cable for the UPS input (except SE61, SE101 and SE203)
- Output receptacles are on the UPS (except SE61, SE101and SE203)
- A recharging cable is connected to external battery cabinets SBPE61.

NOTE: *The casters on the types SE61, SE101 and SE203 are not suitable for moving the devices over a long distance.*

4.1 Installation of the S Series

Connect the UPS to a grounded wall receptacle.

CAUTION: *As soon as the UPS is connected to the AC mains, the output receptacles are energized, even if the UPS is not yet switched on with the front-panel switch.*

The LED indications “LINE” and “BYPASS” are illuminated.

4.2 Installation of the SE Series (Hardwired)

WARNING: *Only qualified electricians should install an ONEAC Sinergy SE61 (SE41), SE101, (SE81)or SE203 (SE153) hardwired UPS. When installing the unit, follow applicable local and national regulations (such as the U.S. National Electric Code), good wiring practices and this manual.*

1. Unpack and move Sinergy UPS and battery cabinet(s), if supplied, into desired installation location.
2. Adjust leveling jacks under the UPS and battery cabinet(s) to remove wheels of the units from the floor and avoid movement of connections.
3. Turn off input and output breakers on the back of the UPS and any battery cabinets to be used.
4. Turn off and isolate the power source to be used for the UPS input using proper lock-out/tag-out procedures.
5. Confirm that the power source to be used for the UPS is 208 V (208/120 3 ϕ for SE203).
6. Remove the connection plate on the back of the UPS to expose connection terminals.
7. Wire input of the UPS by first connecting ground (earth) wire to GND (ground) terminal. Next, connect the input power leads to L1/N and L2 (for SE61 and SE101) or L1, L2, and L3 (for SE203). See Table 2, “Minimum Requirements for Sinergy Series UPS Installation,” on page 15 for minimum wire gauge, wire temperature and screw torque requirements.

NOTE: *Always use grounding conductor that is equal to or larger in size than the current carrying*

conductors.

8. If the UPS does not have an attached Power Distribution Unit (PDU), wire the output of the UPS to appropriate load as follows:

   Wire 208 V load between terminals marked 120A (x1) and 88B (x3).

   Wire 120 V loads between terminals marked 0 (x2) and 120A (x1) or 0 (x2) and 120B (x4).

CAUTION: *The load connected to 120A and 120B must each be no more than 1/2 the nameplate rated 120 V current. User must properly fuse these outputs to this rating.*

9. Connect the UPS to the battery cabinet(s) (if required)

   See Table 2, “Minimum Requirements for Sinergy Series UPS Installation,” on page 15 for minimum wire gage, wire temperature and screw torque requirements.

   For model SE61 (if using an external battery cabinet), first remove the connection plate from the rear of the battery cabinet, then connect the battery cable (supplied with the battery cabinet) from the battery connector on the UPS to the terminals on the battery cabinet. Confirm that (+), (-) and GND terminals are connected to proper wires. Connect any additional battery cabinets in a “daisy-chain” manner until all GND terminals, (-) terminals and (+) terminals are connected together. See Table 2, “Minimum Requirements for Sinergy Series UPS Installation,” on page 15 for minimum wire gage, wire temperature and screw torque requirements.

   For models SE101 and SE203, first remove the connection plate from the rear of the battery cabinet. Next, connect the wires from GND terminal on the UPS to GND wire on the battery cabinet, and then from (-) terminal on the UPS to the (-) terminal on the battery cabinet. Finally, connect (+) terminal on the UPS to the (+) terminal on the battery cabinet. Connect any additional battery cabinets in a “daisy-chain” manner until all GND terminals, (-) terminals and (+) terminals are connected together. See Table 2, “Minimum Requirements for Sinergy Series UPS Installation,” on page 15 for minimum wire gage, wire temperature and screw torque requirements.

10. Carefully replace the connection plate(s) on the battery cabinet and the UPS, making sure that no wires are pinched or damaged.
11. Confirm that all input and output breakers on the UPS and battery cabinet(s) are in the OFF position.
12. Restore power source to the UPS.

WARNING: *Make sure that all circuit breakers on the battery cabinet and UPS are in the“OFF” postion before removing any covers.*

Table 2. Minimum Requirements for Sinergy Series UPS Installation

	Term ID	Description	SE61 (SE41)			SE101 (SE81)			SE203 (SE153)		
			Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*	Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*	Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*
LINE	GND	Chassis Ground	**	40	75	**	45	75	**	45	90
	L1/N	Line 1	8	40	75	6	45	75	4	45	90
	L2	Line 2	8	40	75	6	45	75	4	45	90
	L3	Line 3	N/A	N/A	N/A	N/A	N/A	N/A	4	45	90
OUTPUT	120A	120 V from Neutral	10	35	75	6	45	75	4	45	90
	0	Neutral	10	35	75	6	45	75	4	45	90
	88B	208 V from 120A	10	35	75	6	45	75	4	45	90
	120B	120 V from Neutral	10	35	75	6	45	75	4	45	90
	GND	Chassis Ground	opt	35	75	opt	45	75	opt	45	90
BATTERY	+	+240 VDC to -	N/A	N/A	N/A	4	45	75	4	45	75
	-	Battery Common	N/A	N/A	N/A	4	45	75	4	45	75
	GND	Chassis Ground	N/A	N/A	N/A	4	45	75	4	45	75

* Use insulated copper wire rated 75 C minimum.
** Must be no smaller than wire connected to L1/N and L2 (for SE61 and SE101) or L1, L2, L3 (for SE203).

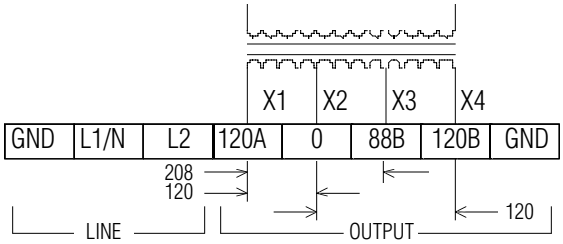


Fig. 16: Wiring Diagram for the SE61

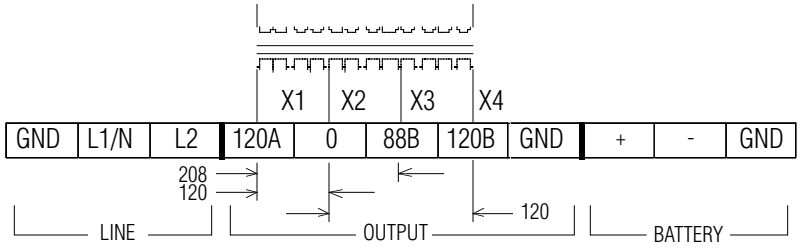


Fig. 17: Wiring Diagram for the SE101

NOTE: *120 A or 120B must be limited to 1/2 nameplate rated current. It is user's responsibility to fuse or breaker these outputs.*

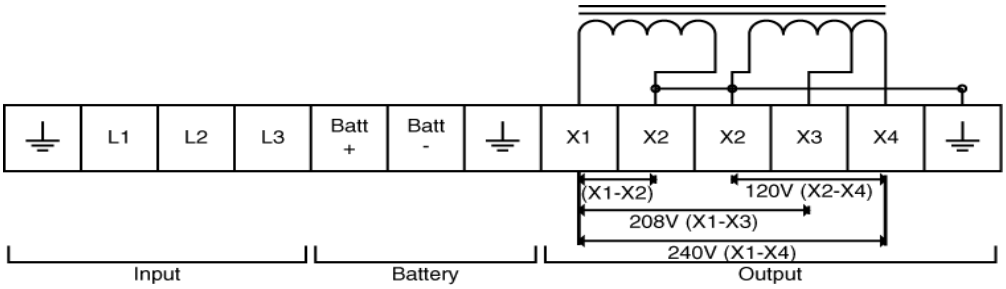


Fig. 18: Wiring Diagram for the SE153 and SE203

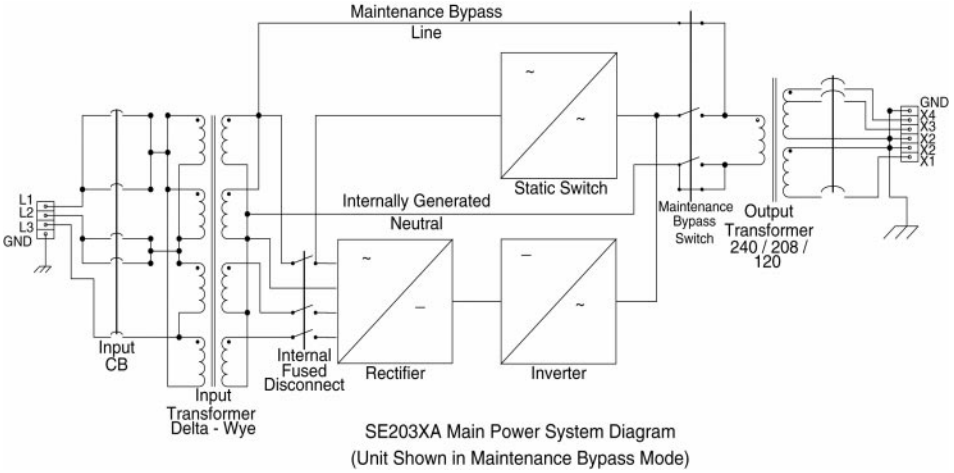


Fig. 19: SE203 Power System

NOTE: *120 A (X1-X2) or 120B (x2-x4) must be limited to 1/2 nameplate rated current. It is user's responsibility to fuse or breaker these outputs.*

4.3 Commissioning of the S Series

When connected to the mains, the batteries automatically begin charging. The UPS may be used immediately, however, full run time will not be available until the batteries are fully charged.

1. Before using the device, charge the batteries for 8 hours.
2. After charging, connect the loads to the UPS.

NOTE: *Do not connect any devices that overload the UPS or draw DC current from the UPS (e.g. hair dryers, vacuum cleaners).*

3. When the signal interface is used, then the connection cable (accessories) is linked between UPS and computer system. Please see instructions in the documentation for the accessories.
4. Switch on the loads.
5. Switch on the UPS by operating the switch ⏽ on the front panel.

The “LINE” and “BYPASS” indicators and the “LOAD” (output load) indicator are illuminated. After a few seconds the “INVERTER” indicator illuminates and the “BYPASS” indicator turns off. The UPS is now in ON-LINE operation.

NOTE: *If the “LOAD” indicator is beyond 100%, then too many devices are connected to the UPS. If only one device is connected to the UPS, then its energy demand exceeds the nominal rating of the UPS, which means that a UPS with a higher power rating has to be used.*

An overload alarm signal (1 signal per second) is heard.

NOTE: *The UPS devices may be commissioned even without being supplied by the grid. The batteries, however, should be charged sufficiently (see above).*

4.4 Commissioning of the SE Series

NOTE: *Confirm mains voltage is 208 VAC forSE61 and SE101and 208/120 VAC 3ϕ for SE203.*

1. Switch on the input circuit breaker on the back of the UPS.

WARNING: *As soon as the UPS is connected to the AC mains, the output receptacles are energized, even if the UPS is not yet switched on with the front-panel switch.*

The “LINE” and “BYPASS” LED indicators are illuminated.

2. When connected to the mains, the batteries automatically begin charging. The UPS may be used immediately, however, full run time will not be available until the batteries are fully charged
3. Before using the device, charge the batteries for 8 hours.
4. After battery charging is completed, switch on the output circuit breaker at the rear side of the UPS. The loads are now supplied by the UPS.

NOTE: *Do not connect any devices that overload the UPS or draw DC current from the UPS (e.g. hair dryers, vacuum cleaners).*

5. If a signal interface cable is used, connect the cable (accessory) between the UPS and the computer system. Please observe further instructions in the documentation for the accessory.
6. Switch on the loads.
7. Switch on the UPS by operating the switch | at the front plate.

NOTE: *If unit will not switch on, confirm that the batteries are properly connected to the unit and any battery breakers are “ON.”*

The “LINE” and “BYPASS” indicators and the “LOAD” (output load) indicator are illuminated. After a few seconds the “INVERTER” indicator illuminates and the “BYPASS” indicator turns off. The UPS is now in ON-LINE operation.

NOTE: *If the “LOAD” (output load) indicator is beyond 100%, then too many devices are connected to the UPS. If only one device is connected to the UPS, then its energy demand exceeds the nominal rating of the UPS, which means that a UPS with a higher power rating has to be used.*

An overload alarm signal (1 signal per second) is heard.

4.5 Commissioning of an External Battery Cabinet

The following table shows the designations of the battery cabinets which are available for the UPS devices.

Table 3. External Battery Packs

Model	Cabinet	Batteries
S700	NA	NA
S1000	SBP1000	2x (3x7. 2 Ah)
S2000	SBP3000	2x (8x7. 2 Ah)
S3000	SBP3000	2x (8x7. 2 Ah)
SE61 (SE41)	SBPE61	2x (20x7. 2 Ah)
SE101 (SE81)/ SE203 (SE153)	SBPE101	1x (20x38 Ah)

Disconnect the UPS from the mains and the loads from the UPS.

CAUTION: *Make sure that the circuit breaker on the external battery cabinet is in the OFF position.*

CAUTION: *Battery cabinets are not interchangeable. Use ONLY the battery cabinet indicated above.*

Connect the battery cabinet types SBP1000, SBP3000 and SBPE61 to the UPS using the supplied cable. The connection scheme is shown in the figures below. With type SBPE101, make the hard-wired connection between UPS and the battery cabinet (see figure 22 and 23 on page 20).

Switch the circuit breaker on the battery cabinet to the ON position.

The UPS is now ready for operation.

NOTE: *Battery charging times may be longer when using an external battery cabinet.*

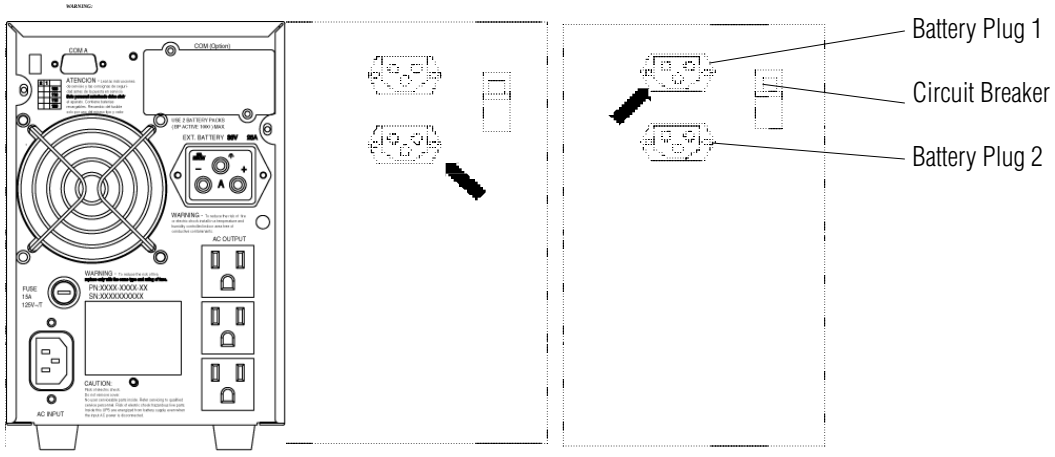


Fig. 20: Connection of Battery Extensions for devices S1000

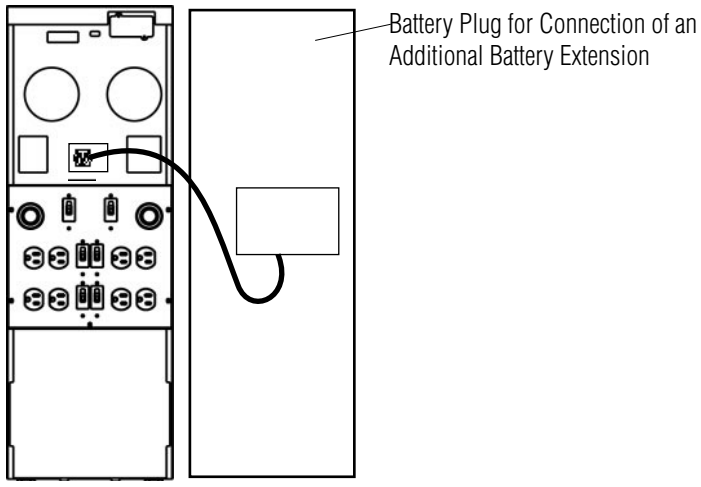


Fig. 21: Connection of an External Battery Cabinet to Type SE61

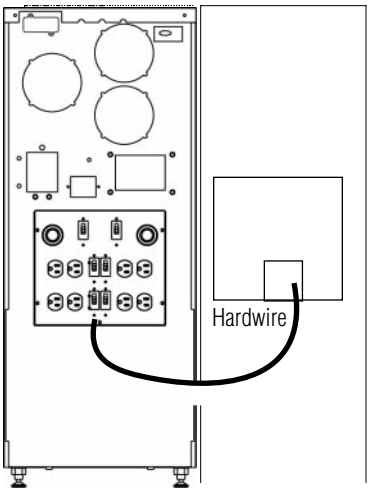


Fig. 22: Connection of an External Battery Cabinet to TypeSE101

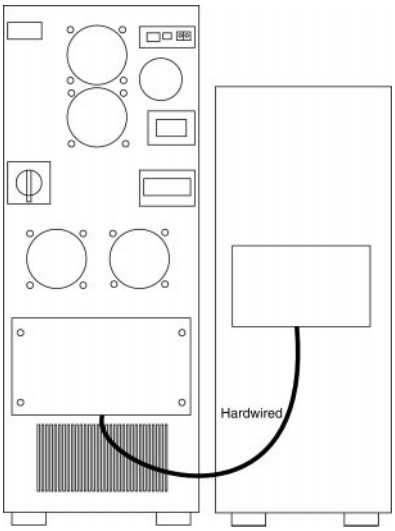


Fig. 23: Connection of an External Battery cabinet to Type SE203

WARNING: *The connection of the external battery cabinet may only be done by qualified personnel in accordance with the applicable safety regulations.*

CAUTION: *For the electrical installation, the maximum load capacity of the connection cable has to be taken into account.*

Table 4. Technical data of the connection cable

	SE101	**SE203**
Minimum permissible cable cross section	20 mm^2, 4 AWG	4 AWG
Maximum permissible cable cross section	20 mm^2, 4 AWG	4 AWG
Nominal operating voltage	240 VDC	240 VDC

Chapter 5 Operational Characteristics

5.1 Ready for Operation Check

To check the emergency supply feature of the UPS, it must be disconnected from the mains.

When correctly functioning with charged batteries, an acoustical signal in intervals of 4 seconds will be heard. The LED “LINE” (line voltage) indicator disappears. When the interval between the acoustical signals is reduced to 1 second, the UPS will supply energy for a maximum of 3 more minutes before it is automatically switched off.

The load will be supplied from the batteries during the specified emergency supply period. If this is not so, then please check in chapter 8 “Troubleshooting” on page 28.

Reconnect the UPS with the mains.

The UPS is now again ready for normal operation. Please note, that the batteries have to be recharged before the complete emergency supply period is again available.

5.2 Self Test

The self test is a LED test.

With the UPS connected to the AC power, switch | has to be operated for at least 1 second.

- Acknowledgment of the input is given by a single acoustical signal.
- The elements of the LED “BATTERY” chain are illuminated according to the battery’s load status. The “LINE” and “BYPASS” indicators are illuminated.
- Initially all elements of the LED “LOAD” chain are illuminated. Beginning with the top indicator, all elements of this chain will extinguish one after the other. Thereafter the elements are on according to the UPS load status.
- The “BYPASS” indicator turns off after approximately 5 seconds and the “Inverter” indicator illuminates. The load is supplied through the inverter, the energy is taken from the mains.

5.3 Modes of Operation

There are three modes of operation, when the UPS is switched on.

5.3.1 Normal Operation, Inverter On (Mains Available)

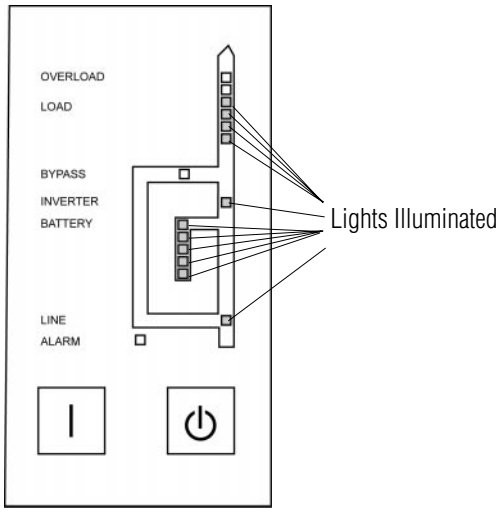


Fig. 24: Front Display Panel During Normal Operations (Mains Available)

The loads are supplied through the inverter, the energy is taken from the mains.

5.3.2 Battery Operation, Inverter On (Mains Failure)

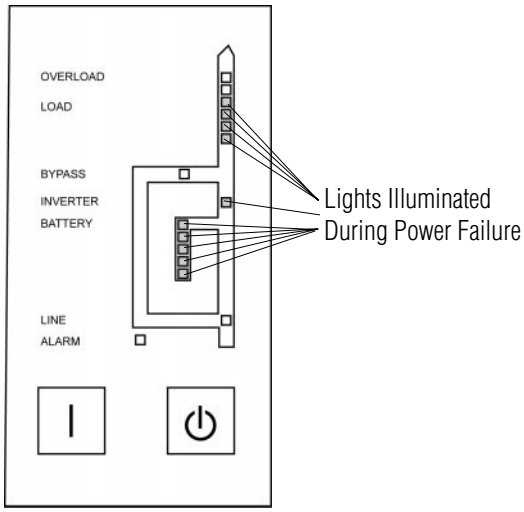


Fig. 25: Front Display Panel During Battery Operation (Mains Failure)

In the event of a mains failure, the inverter continues to supply the loads uninterruptedly, the energy is taken from the battery.

In this operation mode, an acoustical signal is given in intervals of approximately 4 seconds. When reaching the battery's energy minimum, this signal is given every second.

5.3.3 Bypass Operation, Inverter OFF (Overload > 140%)

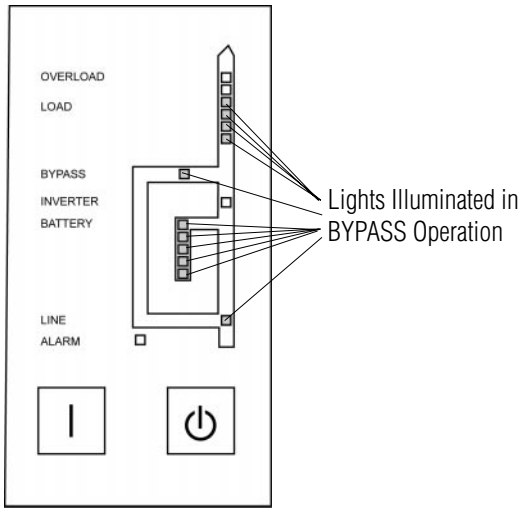


Fig. 26: Front Display Panel During Bypass Operation (Overload > 140%)

In the event of large overload (> 140%) switch-over to bypass is initiated and the inverter is blocked. The energy is taken from the mains.

This is not a normal operating status. In the event of mains failure the loads will no longer be supplied (no UPS operation).

Chapter 6 Description of the Interface

The Sinergy UPS Series has a standard interface COM A and an optional interface COM B. Protocol data transfer signal exchange is through COM A RS232 interface or the optional interface (COM B).

These interfaces can be used for:

- Direct communication between UPS and a computer.
- Integration of the UPS as client into a network with centralized monitoring.
- Transfer of operational states to external alarm systems.

The necessary communication software packages and interface cables are available as accessories.

6.1 Standard Interface COM A

The 9-pin SUB-D connector (pin contacts) contains the RS 232 signals, 5 output signals and 1 input signal. The RS232 signal RXD can also be used as input signal, when the sequential interface is not used.

The 5 alarm outputs are open-collector outputs.

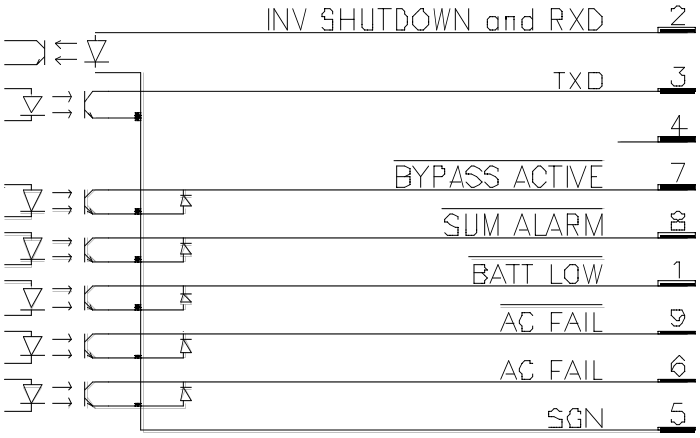


Fig. 27: COM A signal Definition and Connection

The interface COM A is galvanically separated from all other circuits.

Table 5. Interface COM A

Pin Number	Condition
SGN at pin 5	This connection point serves as a reference for all signals.
RXD at pin 2 and TXD at pin 3	In conforms standard RS232 configuration.
INV SHUTDOWN at pin 2	This input (pin 2: High signal +5V...+12V, t≥ 1 second, pin 5: 0V) enables the control processor to switch off the UPS in the event of a mains failure. After the mains has been reestablished, the UPS starts again independent of this signal status.
BATTERY LOW at pin 1	This output goes low, when the battery can supply current for approximately 3 more minutes at nominal load.
AC FAIL at pin 9 and AC FAIL at pin 6	Pin 9 goes low and pin 6 goes high for mains voltage failure at the UPS input for a minimum of 10 seconds or when the mains voltage moves beyond the tolerance band. The signal is reset 850 ms after the mains have been reestablished.
BYPASS ACTIVE at pin 7	This signal goes low after switching over to bypass, blocking the inverter and the energy being supplied by the mains
SUM ALARM at pin 8	This output is low, when one of the alarms “BATTERY LOW”, “AC FAIL” or “BYPASS ACTIVE” is given.

6.2 Optional Interface COM B

The optional interface COM can be equipped with various interface cards. The designation beside the plug then depends on the type of interface card.

In the following the function of the interface signals for version COM B is described. The optional interface COM B provides potential-free signalling contacts and a shutdown input and an insulated auxiliary supply.

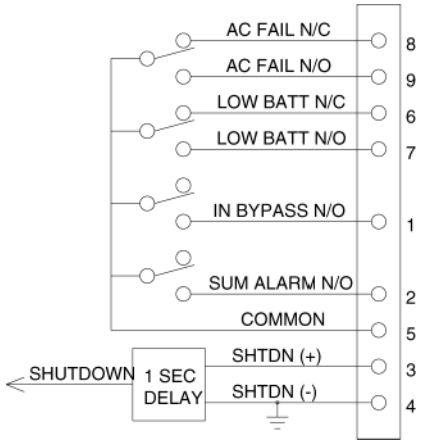


Fig. 28: Simplified Schematic of Interface Connections

INV SHUTDOWN

This input (pin 3) is enabled with a high signal (+5 V to +12 V with respect to pin 4 (0 V)) and when enabled, switches off the UPS after a mains failure has occurred. After the mains has been reestablished, the UPS starts again independent of this signal status. This input must be high for one (1) second before shut off will occur.

AC FAIL

This output provides an N/O (Normally Open) contact between pins 9 and 5, and an N/C (Normally Closed) contact between pins 8 and 5. the 9-5 contact closes when the mains voltage fails at the UPS input or when the mains voltage falls below the lower limit for a minimum of 10 seconds. This contact opens approximately 850 ms after the mains have been reestablished. The 8-5 contact provides a mirror function, opening when the mains voltage fails and closing when mains power returns.

LOW BATT

This output provides a N/O contact between pins 6 and 5 and an N/C contact between pins 7 and 5. The 6-5 contact closes when the battery has been depleted to the point that it can only supply current for approximately three (3) more minutes at nominal load. The 7-5 contact provides a mirror function opening when the battery is low.

BYPASS ACTIVE

This output provides an N/O contact between pins 1 and 5. The 1-5 contact closes after switching to the bypass mode. In the bypass mode, energy to the output of the UPS is being supplied by the mains power and not through the inverter.

SUM ALARM

This output provides an N/O contact between pins 2 and 5. The 2-5 contact closes when one of the alarms “AC FAIL,” “LOW BATT” or “BYPASS ACTIVE” is active or when the indication “ALARM” at the front-panel is on.

6.3 Emergency Power Off (EPO) (Model SE203X only)

The external connection to the EPO circuit is located next to the 9-pin SUB-D (interface com A) connector in the upper right of the back of the unit. If the circuit between the two EPO connector pins is “opened,” the output of the UPS is immediately switched off. To restart the UPS, the procedures outlined in section 4.4 on page 17 must be followed. The EPO circuit may be extended by connecting normally closed switches in series between the EPO connector pins. Activating (opening) any of the series switches will cause the UPS to shut off its output.

Chapter 7 Maintenance

The UPS does not require maintenance by the user. When the battery expires, the UPS or the battery must be replaced by qualified electrical personnel.

The typical battery's lifetime is 4 years at an ambient temperature of 25 °C. This may vary greatly depending upon load conditions, number of outages, and environmental factors.

NOTE: *Check periodically (6 to 12 months), to see whether the emergency supply time of the UPS is still sufficient for its application (See "Ready for Operation Check" on page 21.).*

7.1 Storage

For extended storage in moderate climates, the batteries should be charged for 8 hours every three months. Repeat it every two months in high temperature locations.

1. Connect the UPS to a grounded receptacle or install the types for hard-wire connection according to chapter 4 "Installation and Commissioning" on page 13 at an appropriate source. Switch on the input circuit breaker at the rear of the device for hard-wired connection.
2. Pull out the mains plug after 8 hours or switch off the input circuit breaker of the UPS if hard-wired. Then remove the connections of the UPS in an inverted sequence to what is described in chapter 4 "Installation and Commissioning" on page 13.
3. Note the date of charging on the packing.

NOTE: *Make sure all circuit breakers are turned off.*

7.2 Cleaning

CAUTION: *Press the ⏻ switch on the front panel and pull the plug out of the mains receptacle.*

NOTE: *Type SE61, SE101 and SE203: Press the ⏻ switch on the front panel, switch off the input circuit breaker, isolate the source and secure it against reclosing.*

Do not use scouring powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to get inside the UPS.

Make sure that the air vents on the UPS are not obstructed.

Clean the outside of the UPS housing by wiping with a dry or a slightly damp cloth.

Chapter 8 Troubleshooting

If a problem occurs in spite of the high reliability of the device, please review the following checks before calling ONEAC Technical Services.

- Is the UPS plugged into a correctly working grounded receptacle (or for hardwired to confirmed 208 VAC input)?
- Has the fuse blown or have circuit breakers tripped?

Please note the following information when you call for service:

- Information about the device (model number, serial number from serial plate)

Full description of problem (connected loads, does the problem occur regularly or sporadically, display indicators/alarm etc.)

Table 6. Troubleshooting

Problem	Possible Cause	Action to Take
No indication. No alarm.	Main switch is OFF.	Switch on main switch.
	No mains voltage available.	Have mains checked by qualified electrical personnel.
	Input fuse has blown or input circuit breaker has tripped.	Replace fuse by identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
	External batteries are not connected when powered.	Unit will not run without batteries. Confirm proper battery connection.
LINE Indicator is not on, acoustical alarm is given in intervals.	Mains failure.	Normal UPS operation (see also “Operational Characteristics” on page 21).
LINE Indicator is not on, although mains voltage is available, acoustical alarm is given in intervals.	Input fuse has blown or input circuit breaker has tripped.	Replace fuse with identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
ALARM Indicator is on, continuous acoustical alarm.	UPS failure.	Press BYPASS switch, then ON switch. If normal operation does not occur, call Technical Services.
	Over temperature.	Reduce ambient temperature.
Emergency supply time is shorter than specified.	Batteries are not completely charged.	Charge batteries (“Installation and Commissioning” on page 13) and test emergency supply time. If problem persists, then call Technical Services.
	Batteries are defective or reached the end of its useful life.	
	Charging device is faulty.	
OVERLOAD LED indicator is on.	Overload at the UPS output.	Reduce load to the permissible value.

Chapter 9 Technical Support

9.1 ONEAC Technical Support

ONEAC offers 24-hour technical support. To contact ONEAC Technical Services:

- North America: (800) 327-8801 (opt. 3) or (847) 816-6000 (opt. 3)
- Europe: +44 (0) 1235 534721
- email: ts@oneac.com.

NOTE: *All calls received before 7 a.m. or after 7p.m. Central Standard Time are forwarded to a cell phone. An ONEAC Technical Support Representative will return your call within one half hour between 5 p.m. and 10 p.m. Central Standard Time. Except for emergencies, calls received between 10 p.m. and 7 a.m. will be returned during normal business hours.*

Please check with ONEAC Technical Services before attempting to repair or return any ONEAC product. If an ONEAC unit needs repair or replacement, ONEAC Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

Chapter 10 Specifications

Table 7. ONEAC Sinergy UPS (S Series) North America

UPS Model	S700A	S1000XA	S2000XA	S3000XA
Electrical Data				
Rating	700 VA	1 kVA	2 kVA	3 kVA
Input				
Voltage	120 VAC single-phase			
Voltage range A	80 - 138 VAC			
Frequency	50/60Hz ± 0.5%			
Power factor (lambda)	≥0.95			
Battery				
Integrated battery type	Lead-calcium, maintenance-free			
Battery voltage (V)	24	36	96	96
Runtimes (min.) (half load/full load)	17/6	21/7	26/10	17/6
Runtimes (min.),1 battery cabinet (half load/full load)	NA	85/36	115/49	74/30
Runtimes (min.), 2 battery cabinets (half load/full load)	NA	140/60	215/92	140/57
Output				
Voltage	100/110/120 VAC, single-phase			
Voltage tolerance	± 3%			
Frequency with mains control	see input frequency			
Frequency with internal control	50/60 Hz, ±0. 5%			
Distortion factor (linear/non-linear load)	max. 4%/max. 7%			
Permissible crest factor	3			
Overload capability	130% for 1.5 sec., 110% for 10 sec. output short-circuit proof			

Table 7. ONEAC Sinergy UPS (S Series) North America

UPS Model	S700A	S1000XA	S2000XA	S3000XA
Common Data				
Electrical safety	UL1778			
Radio interference level	FCC Part 15 Class A			
Interference immunity	IEC 801-2,level 4 / IEC 801-3,level 3; IEC 801-4,level 4 / IEC 801-5,level 2)			
Efficiency	> 83%			
Protection class	IP 20			
Cooling	Fan			
Noise level mains operation	< 41 dBa	< 41 dBa	< 50 dBa	< 50 dBa
Noise level battery operation	< 45 dBa	<45 dBa	< 50 dBa	<50 dBa
Operating temperature (ambient)	+ 50°F to +105°F (10°C to + 40°C) recommended +59°F to +89°F (+15°C to + 32°C)			
Storage temperature	+5°F to +104°F (-15°C to +40°C)			
Relative humidity	20% to 90%,non-condensation			
Altitude	max. 10,000 ft. (3000m), above 5,000 ft. (1500m) max ambient temperature = 95°F (35 °C)			
Mechanical Data				
UPS				
Weight - lbs. (kg)	28.6 (13)	35.3 (16)	75 (34)	75 (34)
Dimensions - HxWxD in. (mm)	8.9 x 5.7 x 16 (225 x 145 x 405)		13.8 x 7.9 x 18.5 (350 x 200 x 470)	
Battery extension				
Type	None	SBP1000	SBP3000	SBP3000
Weight lbs (kg)	None	42 (19)	106 (48)	106 (48)
Dimensions - HxWxD in. (mm)	None	8.9 x 5.7 x 16 (225x145x405)	13.8 x 7.9 x 18.5 (350 x 200 x 470)	
Signals				
Visual	LED-indication at the front side			
Audible	Acoustical alarm			
Communications	RS232 interface Alarm contacts +5V...+12 V Signal input +5V...+12 V Ethernet (optional)			

Table 7. ONEAC Sinergy UPS (S Series) North America

UPS Model	S700A	S1000XA	S2000XA	S3000XA
Connections				
Mains connections				
Type	5-15P	5-15P	L5-20P	L5-30P
Fusing mains / CB	10 A	15 A	20 A	30 A
Load connection				
Quantity	3	3	3/1	3/1
Type	5-15R	5-15R	5-15R/L5-20R	5-15R/L5-30R
Maximum current (at 120 VAC, pf = 0.7)	5.8 A	8.3 A	16.7	25 A
Interfaces COM A	9-pin SUB-D (pin contact)			
Interfaces COM B (optional)	Optional contact or ethernet card			
External battery cabinet	none	keyed plug, 3-pole		

Table 8. ONEAC Sinergy UPS (S Series) (International)

UPS Model	S700I	S1000XI	S2000XI	S3000XI
Electrical Data				
Rating	700 VA	1 kVA	2 kVA	3 kVA
Input				
Voltage	1 ϕ 230 VAC (single phase)			
Voltage range A (|)	160 V to 276 V		184 V to 276 V	
Frequency	50/60 Hz ± 5%, automated frequency check			
Power factor (lambda)	≥ 0.95			
Battery				
Integrated battery type	Lead-calcium, maintenance-free			
Battery voltage (V)	24	36	96	96
Runtimes (min.) half load/full load	17/6	21/7	26/10	17/6
Runtimes (min.), 1 battery half load/full load	NA	85/36	115/49	74/30

Table 8. ONEAC Sinergy UPS (S Series) (International)

UPS Model	S700I	S1000XI	S2000XI	S3000XI
Runtime (min.), 2 batteries half load/full load	NA	140/60	215/92	140/57
Output				
Voltage	208, 220, 230, 240 VAC			
Voltage tolerance	±3%			
Frequency with mains control	see input frequency			
Frequency with internal control	50/60 Hz, ± 0.5%			
Distortion factor (linear/non-linear load)	max. 4%/max. 7%			
Permissible crest factor	3			
Overload capability	130% for 1.5 sec., 110% for 10 sec. output short-circuit proof			
Common Data				
Electrical safety	CE, EN 50091-1			
Radio interference level	EN50091-2 class B			
Interference immunity	IEC 801-2, level 4 / IC 801-3, level 3; IEC 801-4, level 4 / IEC 801-5, level 2			
Efficiency	> 83%			
Protection class	IP 20			
Cooling	Fan			
Noise level mains operation	< 41 dBa	< 41 dBa	< 50 dBa	< 50 dBa
Noise level battery operation	< 45 dBa	< 45 dBa	< 50 dBa	< 50 dBa
Operating temperature	+50°F to +105°F (+10°C to +40°C) recommended +59°F to +89°F (+15°C to +32°C)			
Storage temperature	+5°F to +104°F (+15°C to +40°C) at 0 to 50,000 feet (0 to 15,000 m)			
Relative humidity	20% to 90%, condensation not permissible			
Altitude	max. 10,000 ft (3000 m) above 5,000 ft. (1500 m) max ambient temperature =95°F (35°C)			

Table 8. ONEAC Sinergy UPS (S Series) (International)

UPS Model	S700I	S1000XI	S2000XI	S3000XI
Mechanical Data				
UPS				
Weight - lbs. (kg)	28.6 (13)	35.3 (16)	75 (34)	75 (34)
Dimensions - HxWxD in. (mm)	8.9 x 5.7 x 16 (225 x 145 x 405)		13.8 x 7.9 x 18.5 (350 x 200 x 470)	
Battery extension				
Type	None	SBP1000	SBP3000	SBP3000
Weight - lbs. (kg)	None	42 (19)	106 (48)	106 (48)
Dimensions - H x W x D in. (mm)	None	8.9 x 5.7 x 16 (225x145x405)	13.8 x 7.9 x 18.5 (350 x 200 x 470)	
Signals				
Visual	LED-indication at the front side			
Audible	Acoustical alarm			
Communications	RS232 interface Alarm contacts +5V...+12 V Signal input +5V...+12 V Ethernet (optional)			
Connections				
Mains connections				
Type	IEC 320			
Mains fusing / CB	6 A	10 A	12 A	16 A
Load connection				
Quantity	4	2	4	2
Type	IEC 320 10 A	IEC 320 10 A	IEC 320 10 A	IEC 320 16 A
Maximum current (at 230 VAC, 0.7 pf)	3.0 A	4.3 A	8.7 A	13 A
Interfaces COM A	SUB-D plug 9-pole pin contact			
Interfaces COM (optional)	Optional contact or ethernet card			
Battery extension	None	keyed plug, 3-pole		

Table 9. Sinergy Series Rackmount Technical Data for North American Models

Type	S700A-RM	S1000XA-RM	S2000XA-RM	S3000XA-RM
Dimensions				
Unit dimensions - WxHxD - in. (mm)	19 x 3.5 x 17.6 (483 x 87 x 448)	19 x 3.5 x 17.6 (443 x 87 x 448)	19 x 3.5 x 18.8 (443 x 87 x 478)	19 x 3.5 x 18.8 (443 x 87 x 478)
Body dimensions - WxHxD - in. (mm)	16.1 x 3.5 x 16.1 (410 x 87 x 410)	16.1 x 3.5 x 16.1 (410 x 87 x 410)	16.1 x 3.5 x 17.3 (410 x 87 x 441)	16.1 x 3.5 x 17.3 (410 x 87 x 441)
Weight - lbs (kg)	33 (15)	40 (18)	27 (12)	30 (13.5)
Operating Data				
Ambient temperature	+50°F to 104°F (+10°C to +40°C) 5000 ft to 10000 ft: 50°F to 95°F (1500 m to 3000 m: +10°C to +35°C)			
Storage temperature	+5°F to +104°F (-15°C to +40°C)			
Relative Humidity	20% to 90%, non-condensing			
Type of cooling	Fan			
Safety class	UL1778			
RFI class	FCC part 15 Class A			
Efficiency	> 83%	> 83%	> 83%	> 83%
Noise level	42 dBa	42 dBa	50 dBa	50 dBa
Installation				
Mains connections	5-15P	5-15P	L5-20P	L5-30P
Electrical load (output)	(3) 5-15R	(3) 5-15R	(2) 5-20R	(1) L5-30R
Minimum fuse protecting of mains	10 A	15 A	20 A	30 A
Battery pack - external	—	SBP1000-RM	SBP3000-RM	SBP3000-RM
Battery voltage	—	36 V	96 V	96 V
Net weight (kg)	—	47.5 (21.5)	59.5 (27)	59.5 (27)
Dimensions	—	same as UPS		

NOTE: *for electrical specifications see* *“ONEAC Sinergy UPS (S Series) North America” on page 30.*

Table 10. Sinergy Series Rackmount Technical Data for International Models

Type	S700I-RM	S1000XI-RM	S2000XI-RM	S3000XI-RM
Dimensions				
Unit dimensions - WxHxD - in. (mm)	19 x 3.5 x 17.6 (483 x 87 x 448)	19 x 3.5 x 17.6 (443 x 87 x 448)	19 x 3.5 x 18.8 (443 x 87 x 478)	19 x 3.5 x 18.8 (443 x 87 x 478)
Body dimensions - WxHxD - in. (mm)	16.1 x 3.5 x 16.1 (410 x 87 x 410)	16.1 x 3.5 x 16.1 (410 x 87 x 410)	16.1 x 3.5 x 17.3 (410 x 87 x 441)	16.1 x 3.5 x 17.3 (410 x 87 x 441)
Weight - lbs (kg)	33 (15)	40 (18)	27 (12)	30 (13.5)
Operating Data				
Ambient temperature	+50°F to 104°F (+10°C to +40°C) 5000 ft to 10000 ft: 50°F to 95°F (1500 m to 3000 m: +10°C to +35°C)			
Storage temperature	+5°F to +104°F (-15°C to +40°C)			
Relative Humidity	20% to 90%, non-condensing			
Type of cooling	Fan			
Safety class	CE, EN50091-1			
Radio interference level	EN50091-2 class B			
Interference immunity	EN50091-2 class B; IEC 801-2, lev. 4; IEC 801-3, IEC 801-4, lev.4; IEC 801-5, lev. 3			
Efficiency	> 83%	> 83%	> 83%	> 83%
Noise level	42 dBa	42 dBa	50 dBa	50 dBa
Installation				
Mains connections	IEC320 10 A	IEC320 10 A	IEC320 10 A	IEC320 16 A
Electrical load (output)	(4) IEC320 10 A	(4) IEC320 10 A	(4) IEC320 10 A	(1) IEC320 16 A
Minimum fuse protecting of mains	6 A	10 A	12 A	16 A
Battery pack	—	SBP1000-RM	SBP3000-RM	SBP3000-RM
Battery voltage	—	36 V	96 V	96 V
Net weight (kg)	—	47.5 (21.5)	59.5 (27)	59.5 (27)
Dimensions	—	same as UPS		

NOTE: *for electrical specifications see* *“ONEAC Sinergy UPS (S Series) (International)” on page 32.*

Table 11. S700-RM-1 and S1000-RM-1 Runtimes

VA	Watt	S700-RM	S1000-RM	S1000-RM + 1 BP	S1000-RM + 2 BP
100	70	33	—	—	—
200	140	23	31	156	292
300	210	14.5	26	112	209
350	242	12	24	95	175
400	280	10.5	21	80	150
500	350	9	17	62	116
600	420	7	14	50	94
700	490	6	11	42	79
800	560	—	9	36	67
1000	700	—	6	27	51

Table 12. S2000-RM-1 Runtimes in Minutes

VA	Watt	S2000-RM + 1 BP	S2000-RM + 2 BP	S2000-RM + 3 BP	S2000-RM + 4 BP	S2000-RM + 5 BP
400	280	64	149	246	350	460
500	350	51	119	193	278	366
600	420	43	100	164	233	307
700	490	36	84	138	196	258
800	560	31	72	119	169	222
1000	700	23	56	92	130	171
1250	875	19	43	71	102	133
1500	1050	16	35	56	80	105
1750	1225	13	28	48	68	89
2000	1400	11	24	40	57	75

Table 13. S3000-RM-1 Runtimes in Minutes

VA	Watt	S3000-RM + 1 BP	S3000-RM + 2 BP	S3000-RM + 3 BP	S3000-RM + 4 BP	S3000-RM + 5 BP
600	420	41	95	157	223	293
700	490	34	80	131	189	248
800	560	29	70	114	163	216
1000	700	22	54	90	128	168
1250	875	19	42	70	100	131
1500	1050	16	34	57	80	106
1750	1225	13	27	47	67	88
2000	1400	11	24	40	56	73
2250	1575	9	22	35	49	65
2500	1750	7	19	30	44	57
2750	1925	6	18	26	39	51
3000	2100	5	16	23	34	45

Table 14. ONEAC Sinergy UPS (SE Series) North America

UPS Model	SE61XA (SE41XA*)	SE101XA (SE81*)	SE203XA (SE153XA*)
** Models may be upgraded to base kVA of UPS shown.*			
Electrical Data			
Rating	6 kVA	10 kVA	20 kVA
Input			
Voltage	208 VAC single-phase		208/120 three-phase
Voltage range	170 V to 276 V	176 to 276 V	177 to 240 V
Frequency	50/60Hz ± 5%		
Power factor (lambda)	≥0.97		≥0.95
Battery			
Integrated battery type	Lead-calcium, maintenance-free		None
Battery voltage (V)	240		
Runtimes (min.) (half load/full load)	25/8	30/12	N/A
Runtimes (min.),1 battery cabinet (half load/full load)	94/38	100/40	40/15
Output Voltage			
Voltage - North American	120, 208, 240 VAC, single-phase		
Voltage tolerance	± 3%		
Frequency with mains control	see input frequency		
Frequency with internal control	50/60 Hz, ± 0.5%		
Distortion factor (linear/non-linear load)	max. 4%/max. 7%		max. 5%/ max. 8%
Permissible crest factor	3		
Overload capability	130% for 2 sec., 110% for 10 sec. output short-circuit proof		
Common Data			
Electrical safety	UL1778		
Radio interference level	FCC Part 15 Class A		
Interference immunity	IEC 801-2,level 4 / IEC 801-3,level 3 IEC 801-4,level 4 / IEC 801-5,level 2		
Efficiency	> 86%	>90%	>85%

Table 14. ONEAC Sinergy UPS (SE Series) North America

UPS Model	SE61XA (SE41XA*)	SE101XA (SE81*)	SE203XA (SE153XA*)
Cooling	Fan		
Common Data (continued)			
Noise level mains operation	< 50 dBa	< 55 dBa	<65 dBa
Noise level battery operation	< 55 dBa	<65 dBa	<65 dBa
Operating temperature	+ 50°F to +105°F (+10°C to + 40°C) recommended +59°F to +89°F (+15°C to + 32°C)		
Storage temperature	+5°F to +104°F (-15°C to +40°C)		
Relative humidity	20% to 90%, non-condensing		
Altitude	max. 10,000 ft. (3,000m), above 5,000 ft. (1,500m) max ambient temperature = 95°F (35 °C)		
Mechanical Data			
UPS			
Weight - lbs. (kg)	198 (90)	397 (180)	715 (325)
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 13.4 x 25 (965 x 340 x 670)	46.5 x 16.5 x 31.5 (1180 x 420 x 800)
Battery extension			
Type	SBPE61	SBPE101	
Weight lbs (kg)	639 (290)	683 (310)	
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 15 x 26.4 (965 x 380 x 670)	
Signals			
Visual	LED-indication at the front side		
Audible	Acoustical alarm		
Communications	RS232 interface Alarm contacts +5V...+12V Signal input +5V...+12V ethernet		
Connections			
Mains connections	hardwired min 8 AWG/6 mm^2 max 6 AWG/16 mm^2	hardwired min 6 AWG/10 mm^2 max 4 AWG/20 mm^2	hardwired 4 AWG/20 mm^2
Fusing of the mains supply	40 A	70 A	60 A x 5 poles

Table 14. ONEAC Sinergy UPS (SE Series) North America

UPS Model	SE61XA (SE41XA*)	SE101XA (SE81*)	SE203XA (SE153XA*)
Load connection	hardwired min 8 AWG/6 mm^2 max 6 AWG/16 mm^2	hardwired min 6 AWG/10 mm^2 max 4 AWG/20 mm^2	hardwired 4 AWG/20 mm^2
Connections (continued)			
Interfaces COM A	9-pin SUB-D, pin contacts		
Interfaces COM B (optional)	9-pin SUB-D, outlet		
External battery cabinet	keyed plug, 3-pole	hardwired Min 8 AWG/6 mm^2 Max 4 AWG/20 mm^2	hardwired 4 AWG/20 mm^2
EPO	N/A	N/A	hardwired removable terminal block

Table 15. ONEAC Sinergy UPS (SE Series) (International)

UPS Model	SE61XI	SE101XI
Electrical Data		
Rating	6 kVA	10 kVA
Input		
Voltage	230 VAC single-phase	
Voltage range	170 V to 276 V	176 to 276 V
Frequency	50/60Hz ± 5%	
Power factor (lambda)	≥0.97	
Battery		
Integrated battery type	Lead-calcium, maintenance-free	
Battery voltage (V)	240	
Runtimes (min.) (half load/full load)	25/8	30/12
Runtimes (min.),1 batteries (half load/full load)	94/38	100/40
Output Voltage		
Voltage	230 VAC, single-phase	
Voltage tolerance	± 3%	

Table 15. ONEAC Sinergy UPS (SE Series) (International)

UPS Model	SE61XI	SE101XI
Frequency with mains control	see input frequency	
Frequency with internal control	50/60 Hz, ± 0.5%	
Distortion factor (linear/non-linear load)	max. 4%/max. 7%	
Permissible crest factor	3	
Overload capability	130% for 2 sec., 110% for 10 sec. output short-circuit proof	
Common Data		
Electrical safety	CE, EN50091-1	
Radio interference level	EN 50091-2, for limited operation	
Interference immunity	IEC 801-2,level 4 / IEC 801-3,level 3 IEC 801-4,level 4 / IEC 801-5,level 2	
Efficiency	> 86%	>90%
Cooling	Fan	
Noise level mains operation	< 50 dBa	< 55 dBa
Noise level battery operation	< 55 dBa	<65 dBa
Operating temperature	+ 50°F to +105°F (+10°C to + 40°C) recommended +59°F to +89°F (+15°C to + 32°C)	
Storage temperature	+5°F to +104°F (-15°C to +40°C)	
Relative humidity	20% to 90%, non-condensing	
Altitude	max. 10,000 ft. (3,000m), above 5,000 ft. (1,500m) max ambient temperature = 95°F (35 °C)	
Mechanical Data		
UPS		
Weight - lbs. (kg)	198 (90)	397 (180)
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 13.4 x 25 (965 x 340 x 670)
Battery extension		
Type	SBPE61	SBPE101
Weight lbs (kg)	639 (290)	683 (310)
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 15 x 26.4 (965 x 380 x 670)
Signals		
Visual	LED-indication at the front side	
Audible	Acoustical alarm	

Table 15. ONEAC Sinergy UPS (SE Series) (International)

UPS Model	SE61XI	SE101XI
Communications	RS232 interface Alarm contacts +5V...+12V Signal input +5V...+12V Ethernet	
Connections		
Mains connections	hardwired min 8 AWG/6 mm^2 max 6 AWG/16 mm^2	hardwired min 6 AWG * 10 mm^2 max 4 AWG/20 mm^2
Mains circuit breaker	35 A	63 A
Load connection	hardwired min 8 AWG/6 mm^2 max 6 AWG/16 mm^2	hardwired min 6 AWG * 10 mm^2 max 4 AWG/20 mm^2
Interfaces COM A	9-pin SUB-D, pin contacts	
Interfaces COM B (optional)	9-pin SUB-D, outlet	
External battery cabinet	keyed plug, 3-pole	hardwired Min 8 AWG/6 mm^2 Max 4 AWG/20 mm^2

10.1 Battery Lifetime

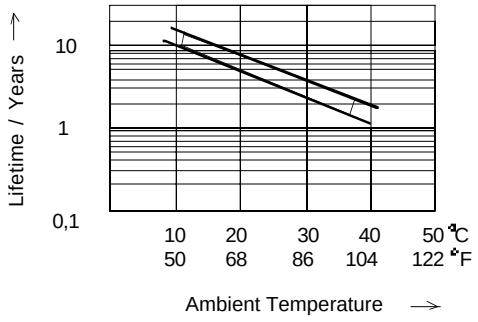


Fig. 29: Typical lifetime of the batteries

Figure 29 shows the typical lifetime of the batteries which are used in the UPS devices, depending on the devices' ambient temperature.

Optional Power Distribution Units (PDU) available for North American 4 -10 kVA.

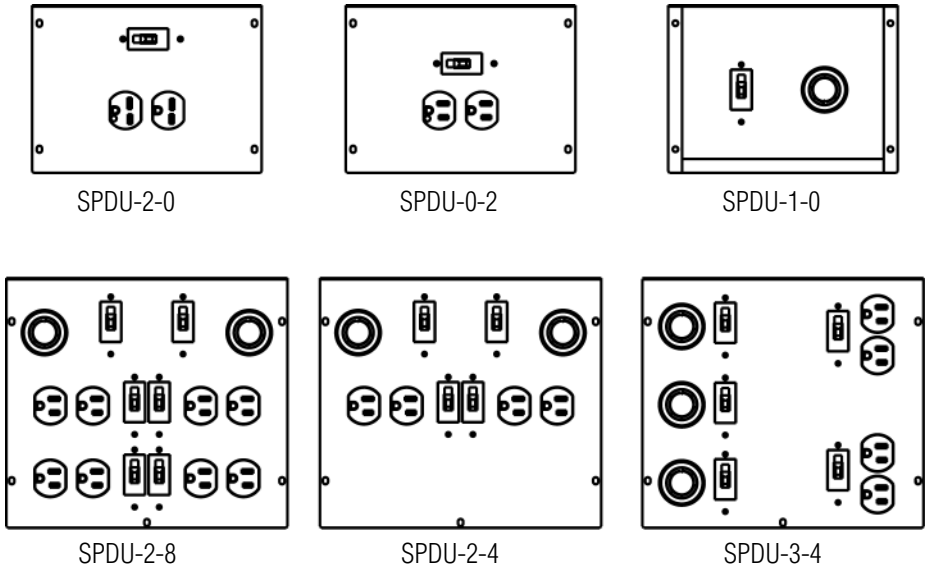
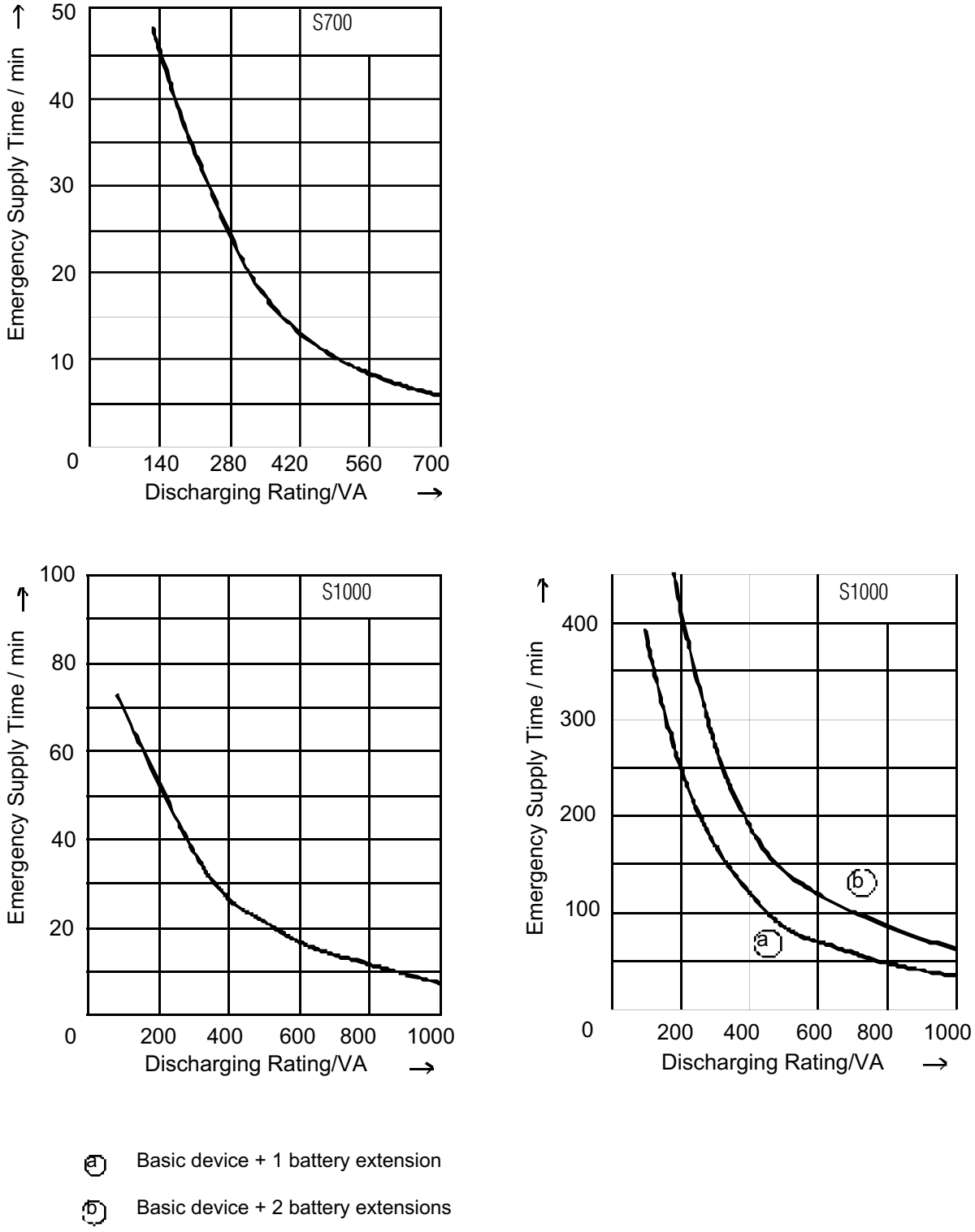


Fig. 30: Optional Power Distribution Units

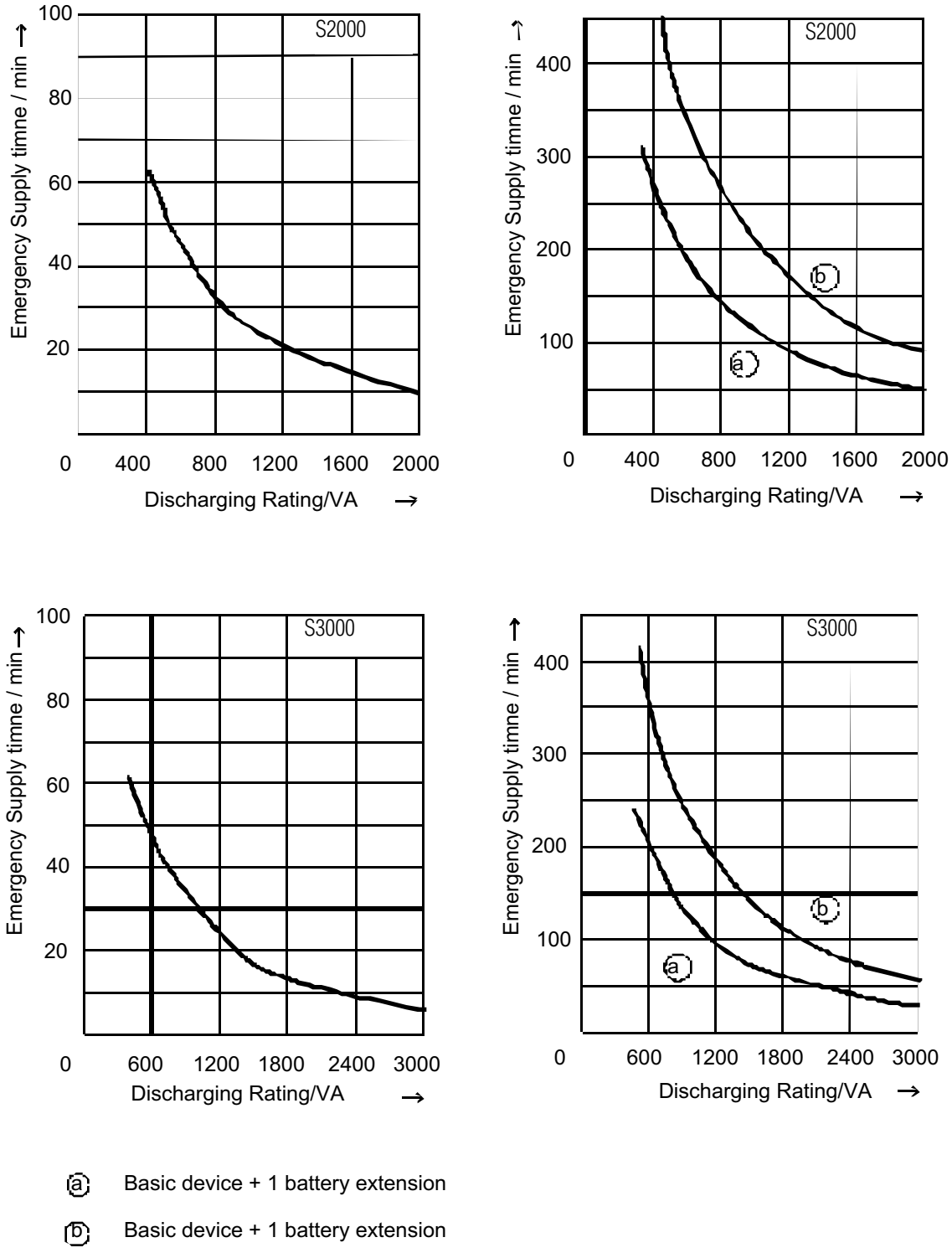
10.2 Typical Emergency Supply Times



a Basic device + 1 battery extension

b Basic device + 2 battery extensions

Fig. 31: Typical Emergency Runtimes for Sinergy S700 and S1000



ⓐ Basic device + 1 battery extension

ⓑ Basic device + 1 battery extension

Fig. 32: Typical Emergency Runtimes for Sinergy S2000 and S3000

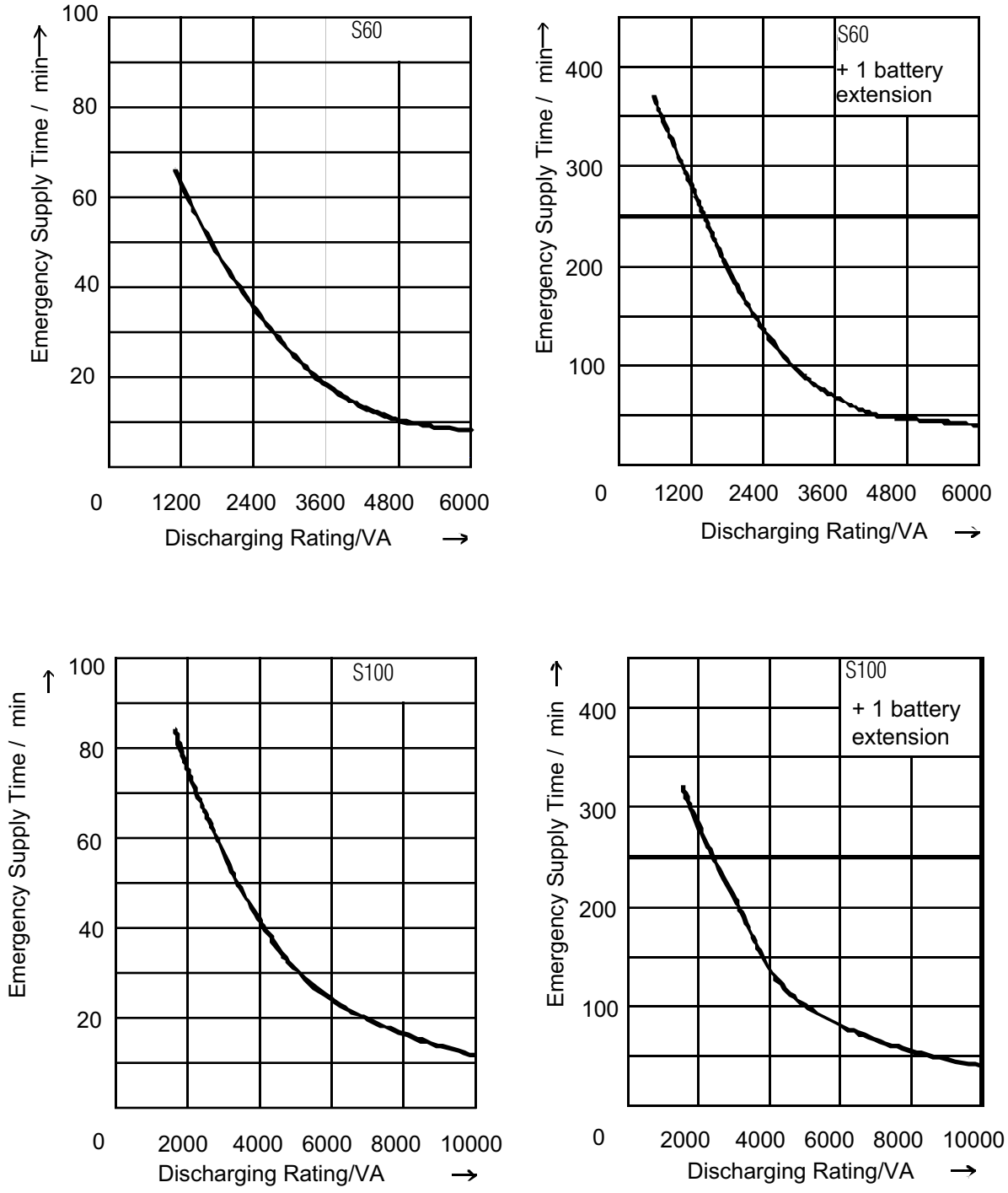


Fig. 33: Typical Emergency Runtimes for Sinergy SE61 and SE101

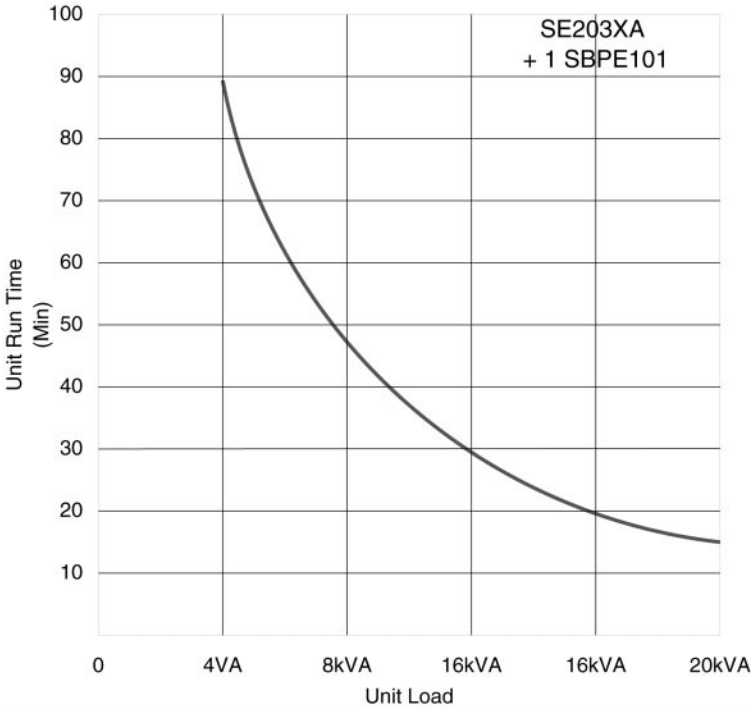


Fig. 34: Typical Emergency Runtimes for Sinergy SE203 and One Battery Pack

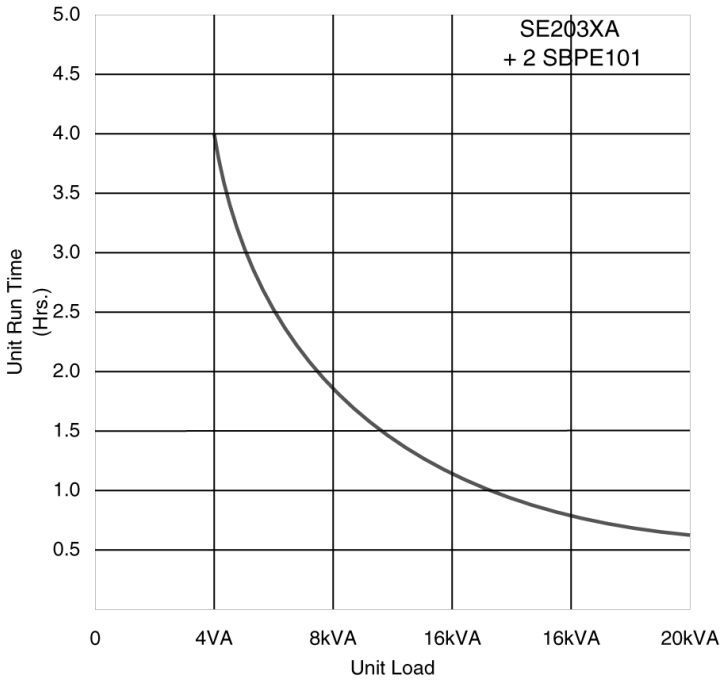


Fig. 35: Typical Emergency Runtimes for Sinergy SE203 and Two Battery Packs